

Policy Research

**WORKING PAPERS**

Public Sector Management  
and Private Sector Development

WPS 977

Country Economics Department  
The World Bank  
September 1992  
WPS 977

# **Income Security for Old Age**

## **Conceptual Background and Major Issues**

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A system for old-age security should probably combine different approaches: mandated savings and annuities; a redistribution of income to old people who did not earn enough when they were young to build an adequate cushion of savings; fiscal incentives for nonmandatory savings and annuities (including tax incentives for job-based pension plans); and an informal system of purely voluntary personal savings and family arrangements.

This paper — a product of the Public Sector Management and Private Sector Development Division, Country Economics Department — is part of a larger effort in the department to investigate the complex issues related to old age security arrangements. The research was funded by the Bank's Research Support Budget under research project "Income Security for Old Age" (RPO 677-45). Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Danielle Evans, room N9-061, extension 37489 (September 1992, 56 pages).

A large and growing proportion of the world's population is old; the elderly are often poor; and many countries face huge fiscal burdens because of promises they have made to give their older citizens income security.

These government old-age security policies have been debated in developed countries for years; more recently they have also become a matter of concern in developing countries. James identifies the issues countries should consider as they reevaluate their old policies and formulate new ones.

The structural differences among available models for providing old-age security involve:

- The link between benefits and costs to each individual, which is closely tied to the plan's objectives (for example, savings and insurance versus redistribution).
- Whether the scheme is funded largely in advance or whether it is financed on a pay-as-you-go basis.
- How much the scheme relies on private or public management.

The choice between these models has broad implications for the operation of labor and capital markets, the fiscal system, and thus the level, growth, and distribution of GNP.

James examines her working hypothesis, that a system built on several pillars is preferable to any single method for providing old-age security — a mixed strategy is the best way to accomplish many goals with minimum costs, including evasionary, distortionary, and uncertainty costs. Of four pillars,

- One mandates savings and annuities, so that people are required to set aside resources during their working years to take care of their needs when they are older. This pillar also ensures against such individual risks as uncertain longevity.

- One redistributes income to old people who did not earn enough when they were young to build an adequate cushion of savings. This pillar may also ensure more broadly against such group risks as unexpectedly high inflation or unexpectedly low rates of return in the economy.

- One provides fiscal incentives for nonmandatory savings and annuities, such as tax incentives for job-based pension plans.

- One consists of purely voluntary personal savings and family arrangements, a continuation of the informal system of old-age security that remains important in most countries even after formal systems are in place.

The mix of these pillars will vary from country to country, depending on their objectives and economic conditions. James evaluates the impact of different mixes on the distribution of costs and benefits and discusses the difficulties of making the transition from one system to another.

She outlines a forthcoming study that will analyze important design features of each system, such as conditions for eligibility and coverage, methods of financing, formulas for benefits and contributions, and provisions for indexing and early retirement. The study will also propose reforms for existing public plans that have become financially nonviable.

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**By:**

**Estelle James**

**CECPS**

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## INCOME SECURITY FOR OLD AGE: CONCEPTUAL BACKGROUND AND MAJOR ISSUES

### Introduction and Summary

The proportion of the world's population that is old is large and growing, this group is often poor, and many countries face huge fiscal burdens because of promises they have made to provide income security to their older citizens. Government policies regarding old age security have large implications for the labor and capital markets, the growth potential and fiscal stability, and the income distribution in a society. While these policies have been debated in developed countries for many years, more recently they have become a matter of concern in developing countries as well. This paper is designed to lay out the issues that countries should consider as they reevaluate their old policies and formulate new policies in this area. It also lays out the issues that will be considered in a forthcoming Bank study of this topic.

Although most developing countries have long had some formal public and/or private pension programs, their coverage has often been limited to formal labor markets in urban areas. Old age security for the rest of the population has been provided through extended family arrangements, mutual aid societies, and other informal mechanisms. But as extended family ties weaken due to urbanization and mobility, and as the proportion of the population that is old grows due to medical improvements and declining fertility, these countries will be forced to reevaluate their degree of reliance on informal systems. This is now happening in many African and Asian countries. The challenge facing them is how to shift to formal systems of income maintenance without accelerating the decline in

informal systems, and how to avoid the mistakes that other countries have made as they design their formal systems.

The need to reevaluate policy is even more pressing for countries that, in the past, introduced formal programs of old age security whose costs have now risen to a point that they can no longer afford, as in many Latin American and Eastern European countries. For example, in Argentina the population over age 60 is 28% as large as the population aged 20-60. Because of early retirement and evasion, the number of beneficiaries of their public pension system is 65% as large as the number of contributors. This means that every contributing worker must support two-thirds of a retired worker, as well as himself. In Hungary, where fertility and retirement age have declined faster but evasion is less due to the predominance of public employment, the comparable numbers are 35% and 51%, respectively; each contributing worker must support half of a retired worker. Not surprisingly, these countries have been unable to pay the promised benefits and have reduced the real value by failing to index pensions or by cutting the income replacement rate. In Chile the basic structure of the system has been changed, and structural changes are also being contemplated in many high and low income countries. The challenge they face is how to redesign their formal systems so that they will be sustainable and have the most favorable effects on economic growth and equity.

Several alternative models for providing old age security are available and in place in different countries. These vary in many ways but the most basic structural differences concern: 1) the link between benefits and costs to each individual, which is closely tied to the plan's objectives (e.g. savings and

insurance versus redistribution), 2) whether the scheme is largely funded in advance versus financed on a pay-as-you-go basis, 3) the degree of reliance on public versus private management. The choice among these models has broad implications for the operations of the labor and capital markets, the fiscal system and, consequently, for the level, growth and distribution of GNP. These implications ultimately determine the preferred system.

The working hypothesis, which will be examined in the study, is that a multi-pillar system is preferable to any single method for providing old age security. One pillar mandates savings and annuities, so that people are required to set aside resources during their working years to take care of their needs when they are older; this pillar also insures against individual risks such as uncertain longevity. Another pillar redistributes income to old people who did not earn enough when they were young to build an adequate cushion of savings; this pillar may also insure more broadly against group risks such as unexpectedly high inflation or unexpectedly low rates of return in the economy. A third pillar provides fiscal incentives for non-mandatory savings and annuities, such as tax incentives for job-based pension plans. And a fourth pillar consists of purely voluntary personal savings and family arrangements, a continuation of the informal system of old age security and that still play an important role in most countries even after formal systems are put in place. While these do not receive tax or other fiscal incentives they are strongly influenced by broader government policies such as policies that permit private property, encourage growth and discourage inflation.

Each pillar is most appropriate for a different objective, and each has a

different set of problems attached, some of which are not measurable in advance. Assuming that the incremental benefits decrease and the incremental costs increase with program size, the hypothesis is that a mixed strategy is the best way to accomplish these multiple goals with minimum costs, including evasionary, distortionary and uncertainty costs.

Most countries with formal systems today have the redistributive pillar, publicly managed on a largely pay-as-you-go basis. In some countries this has been supplemented by a tax-advantaged non-mandatory savings-annuity pillar. Many countries do not have a separate mandatory savings-annuity pillar. If a mixed strategy is adopted, this might include the creation of a separate mandatory savings-annuity pillar, particularly in countries where political and demographic pressures have led to unrealistic promises and large fiscal burdens that make the current pay-as-you-go public system unsustainable in its present form. Creation of such a pillar might have the additional beneficial effects of reducing the distortionary incentive to evade and facilitating the development of long-term capital and capital markets, hence economic growth.

The precise mix of these four pillars will vary from country to country, depending on their economic circumstances, their objectives and their initial conditions. The study will evaluate, in some detail, the impact on benefits, costs and their distribution, of different mixes of these pillars, as well as the difficulties in transitioning from one system to another.

In addition to these basic structural choices, important design decisions must be made for each pillar. For example:



Who should be covered?

What should the contribution rate be, in relation to income?

What should the pension target be, in relation to income?

Should pensions be indexed and, if so, how?

Should there be a floor and/or ceiling on contributions and benefits?

What is the normal retirement age; what about early or late retirement?

Should there be an earnings test or only an age test for benefits?

Should civil servants be given special pension plans?

How will the self-employed be treated; what about small business employees?

How should costs be shared between workers and employers?

Should redistributive pensions be means-tested or universal entitlements?

Should they be financed out of payroll taxes or general treasury revenues?

How will non-working spouses be treated?

How will widows and other survivors be treated?

How will evasion be minimized?

Should pensions be taxed; should pension contributions be tax-exempt?

What policies should guide the investment of pension reserves?

What disclosure and other regulations should apply to private pension plans?

Should pension consumers have choice among investment and benefit policies?

Should private pensions be insured by the government?

Should record-keeping be centralized, even under decentralized plans?

While this background paper concentrates on basic structural issues, a forthcoming study will include a detailed discussion of specific design

features.<sup>1</sup> A major problem with public schemes in many countries has been the provision for early retirement, which has increased the fiscal burden far beyond initial expectations, often with undesirable consequences for labor supply and income distribution. The study will analyze the consequences of these design features, particularly in connection with the public redistributive pillar that is currently the mainstay of most formal systems, and will suggest possible reforms, to increase the effectiveness and decrease the costs of the public pillar.

Part I of this paper reviews the efficiency and equity reasons for government policies concerning old age security. Part II spells out the key policy choices that define the basic nature of the system; this is the foundation for the multi-pillar system. Part III discusses the major cross-cutting issues that arise in connection with each pillar. Part IV summarizes the plan of the study, which will include detailed analyses of each pillar, extensive empirical evidence and policy recommendations.

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<sup>1</sup> Survivor's benefits will be covered in the report since those to spouses are an important source of income security for old people and they are almost always included in old age income security programs. Problems connected with high medical expenses in old age are not covered in this report. Obviously, one's income needs in old age, and hence the pension target, depend heavily on whether medical costs are covered out of personal income or in some other way. This is an example of the complex interaction between old age income security and other safety net instruments. In some countries pensions and medical insurance for old age are covered in the same social security program, expenditures for the latter exceed the former, and cross-subsidies may be involved. This study assumes that medical expenses are covered by some exogenous public or private insurance scheme and deals with the pension implications of other consumption expenses. Disability insurance will not be covered, since it really belongs with a discussion of health and unemployment insurance. This again points up the close connection between these various forms of social insurance, but for purposes of this study we will focus on income security for old age.

## I. Efficiency and Equity Reasons for Public Policies Concerning Old Age Security

In many developing countries old people live with their children as part of an extended family and their consumption needs are covered by the group. In the idealized situation, parents invest in their children, in return their children support them later on, social sanctions in close-knit communities reinforce these arrangements, and mutual aid societies sometimes extend this informal insurance-redistributional system beyond the family to the broader ethnic or cultural group.

However, even when this system works well, some people fall between the cracks; this includes those who never had children, those whose children have died or moved away, and those whose children do not earn enough to support unproductive household members. More recently, these cracks have widened due to increased urbanization and mobility, the growth of the nuclear family, wars, famines, medical progress that has extended life expectancy for the old and medical problems that have reduced the size of the working-age population in some countries.

Both market failure and distributional considerations create special social and governmental concerns about income security for old age, when informal systems have broken down. This section spells out the efficiency reasons -- insufficient savings, incomplete insurance and lack of consumer information -- as well as the equity reasons why purely voluntary solutions are insufficient and public policies are needed in this area. Different remedial policies are implied by different rationales, thus motivating the multi-pillar approach recommended

in this study. Key questions are: which types of plans are preferred on efficiency grounds and to what extent should old age security programs (versus other safety net instruments) be relied upon to achieve society's distributional goals

### Insufficient Saving

Age-earnings profiles turn down sharply after a point<sup>2</sup> and people may not save "enough" when they are young to maintain an optimal lifetime consumption stream when they are old and less productive. In the simplest case this may be due to innocent myopia -- informational deficiencies that lead people to underestimate future consumption needs, hence overestimate the appropriate discount rate. Insufficient saving can also stem from moral hazard -- if people believe that those who run out of their own money will eventually be subsidized by someone else, such as the state. Saving is then not privately desirable, even if it is socially desirable. It may be socially desirable not only because it enables people to maintain their standard of living over the life cycle, but also because it provides the capital which enables the economy to grow. The importance of capital accumulation both as a motive for and effect of government policies in this area will be one of the major themes of this study.

Insufficient saving creates difficulties in old age, even if there is perfect certainty about the future state of the world. If this is the core problem, policies that encourage savings (e.g. by making them tax-deductible) or

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<sup>2</sup> This may be due to "retirement" in formal labor markets or decreased productivity for the elderly in informal markets. Age-earnings profiles may decline more abruptly in the former than the latter.

that mandate savings, may make everyone better off. Such policies redistribute income over the lifetime of the individual but do not redistribute from one individual to another. Government control over these savings is not necessary, however; the savings can be placed into and invested by public or private institutions, and people can be given choice among such institutions.

### Risk-pooling and Insurance

The old age security problem is compounded by risk and uncertainty about the future. For example, people are uncertain about how long they will live, and may wish to buy annuity insurance. However, if private insurance is poorly developed due to adverse selection and weak capital markets, annuities may not be available (except at terms reflecting the worst risks in society).<sup>3</sup> Therefore, even if people save enough to last an "expected lifetime," some of them will live longer than expected and will run out of money.

If insurance companies can secure information about the risk categories into which different people should be placed (e.g. by medical examinations), the adverse selection problem becomes much smaller. However, it may not disappear completely; people may continue to know more than the company about their own

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<sup>3</sup> Adverse selection may occur when people have more information about their life expectancy than does the insurance company. Good and bad risks are then pooled together by the company and charged premiums according to the average risk of the group. However, unless the good risks are very risk averse they will not perceive these as acceptable terms and will not purchase annuities. The insurance company will be left with bad risks and will raise its premiums, leading more good risks to opt out. This process may lead ultimately to the non-availability of insurance for most people, except at terms reflecting the worst risks in society. Government policies prohibiting opting out will stop this process of progressive opting out and raising premiums, thereby making most people (except the very best risks) better off.

degree of riskiness. Another solution to this problem is to encourage the provision of private pension plans through pre-formed groups such as place of employment, with constrained opting out; employers may use them as part of a strategy for attracting and retaining workers. But many employers, especially small scale employers who predominate in developing countries, may not choose to use this strategy. Government policies that require the purchase of annuities might then make everyone better off, by eliminating adverse selection, strengthening capital markets and thereby enabling insurance against uncertain longevity-related income needs, to the degree that this risk is uncorrelated across individuals. Usually combined with the mandated savings plans discussed above, the mandated annuities could be delivered by public or private institutions.

Another, more problematic, variant of the insurance rationale arises when outcomes are correlated across individuals, e.g. when the future inflation rate accelerates much faster than expected or when future rates of return for the economy as a whole turn out to be much lower than expected. Inflation can be partially insured against by investing in equities or indexed securities, but private arrangements cannot fully insure against these correlated hazards, which are particularly critical for old people living on their savings. Therefore, government intervention, backed by the power of taxation and the ability to compel payments across generations, may be a necessary part of the solution for these market failures. This intervention may take a variety of forms, including the issuance of indexed treasury bonds to be purchased by private pension plans, public guarantees of private insurance, or the provision of public pension schemes.

### Incomplete Consumer Information

When provision of goods and services are left to the private market and consumers are given choice, they require information to exercise that choice intelligently. In the case of old age security very long term arrangements are involved, requiring that consumers be informed about the consequences of their actions for many years into the future.

For example, to choose an appropriate savings-annuity scheme at age 35, a worker would have to evaluate his or her lifetime consumption needs (including special medical needs), the likelihood that government will cover these needs out of other programs, the inflation probabilities facing the economy as a whole, and the expected return from alternative investment plans, including the likelihood that the insurance or investment company chosen will still be financially viable 50 years later. Private companies may not always provide that information voluntarily.

To some extent governments can improve the flow of information by imposing disclosure requirements on private firms that handle investments and pensions, by regulating them in other ways, and by education campaigns aimed at informing the public at large. Nevertheless, if one believes that many people will still be unable to obtain and digest all the relevant information and if there are economies of scale in this process, we have another rationale for government intervention to mandate certain actions and limit consumer choice regarding

arrangements for old age security.<sup>4</sup>

### Should Old Age Security be Used to Redistribute Income?

Societies may wish to use income maintenance in old age as a mechanism for redistributing income, both on equity grounds and for efficiency reasons, if people care about each other's well-being. In many countries, old age security systems are the major redistributive mechanism. A central policy question is whether this is an effective means to achieve society's redistributive objectives.

To analyze this question it is essential to distinguish between lifetime income and current income, since different remedies are implied by these two measures. In the absence of public programs, poverty measures based on current income are often disproportionately concentrated among old people, and this has been the prime justification for using age to identify the poor and target income transfers. However, old age is not necessarily positively correlated with poverty, from a lifetime income point of view. In fact, since higher income people live longer, on average, the opposite may be the case. That is, as a cohort ages a decreasing proportion of its living members have experienced lifetime poverty, since its poorer members tend to die first. But substantial current income poverty remains among the old, because of myopia and incomplete insurance markets. To alleviate this problem, inter-temporal reallocations of a given person's income may be called for, as in mandatory savings-insurance

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<sup>4</sup> Incomplete consumer information may be a particular problem for low income less educated consumers. Thus mandatory government schemes may be particularly aimed at this part of the market.



schemes, rather than redistributions across individuals.

Such schemes are the least distortionary way to eliminate life cycle poverty among the old. However, just as they decrease poverty in old age, they may increase poverty in youth, for some people.<sup>5</sup> They also do not eliminate

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<sup>5</sup> These points are illustrated in Figure 1, which depicts three persons -- A, B, and C -- who are in the labor force when they are aged 15-65, withdraw from the labor force at age 65, and die at age 85. (For purposes of this simple illustration, certainty and exogeneity are assumed with respect to age of retirement and death, and mandatory savings-annuity programs are assumed to leave other sources of income unchanged). The solid lines in Figure I indicate the income these 3 individuals will have for each period of life, in the absence of government programs. A "poverty line", PP, indicates the minimum socially acceptable level of income.

It can readily be seen that person A will operate above the poverty line throughout his or her life, person B will be above the poverty line while working but below it after retirement (due to myopia or moral hazard), and person C will be below the poverty line for part of his or her working life, as well as when old. Thus, according to the criterion of current income, persons B and C, or two-thirds of the population, both require positive redistribution after age 65.

However, B's lifetime income is considerably above poverty levels and may even be above the average for the cohort as a whole. If we could shift some of her income from youth to old age, through mandatory savings-annuity programs, her poverty would be eliminated, leaving us only with person C (one-third of the population) with lifetime income below the minimum necessary to eliminate poverty.

This possibility is illustrated by the dotted line which shows the smaller income after mandatory savings that each person is left with while working, and the larger income after dissaving that he or she receives after age 65. We see there that person A, as before, is always above poverty and person B's "retirement income" is raised beyond poverty levels by this process.

But person C's old age income remains below the poverty line and, moreover, C is plunged deeper into poverty even while working, by this enforced saving. Thus C now requires access to other safety net instruments throughout most of his life, and for a larger total amount than before, an added burden on other government programs. (This raises the question of whether in mandatory savings programs, a floor should be placed on the income level which is subject to the savings requirement, to avoid pushing low income people further into poverty).

Society may be more willing to redistribute to C when he is over age 65 and no longer subject to the labor disincentive effect of need-based transfers that apply when he is under age 65. This redistribution might be financed by a PAYG

lifetime poverty or transitory poverty based on unpredictable events. A variety of safety net instruments are available to remedy these remaining problems, some old-age-related and some independent of age. Which methods are more efficient and more equitable?

Old age-related instruments have the advantage that the labor disincentive effect and its opportunity cost are lower for the elderly poor, who are unable to work and/or whose productivity is low; hence, optimal transfers within cohorts would seem to be higher in old age.<sup>6</sup> Also, in a context of rapid economic growth, future cohorts will earn more than past cohorts, so equity (and efficiency under interdependent utilities) may dictate redistribution from the former to the latter. This can be accomplished by age-based transfers, which might be universal or means-tested, funded on a pay-as-you-go basis by the working-age generation.

On the other hand, safety net instruments that are not age-related have the advantage of broad coverage, benefiting everyone who meets the income criteria, regardless of age. More specifically, for any given stock of redistributable income, one must look at alternative claimants, and it is by no means clear that

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tax on the more prosperous workers in younger cohorts, whose lifetime incomes will be higher due to economic growth.

<sup>6</sup> But transfers to the elderly poor may discourage savings when young if these are not mandatory; in this sense, making such savings compulsory may facilitate transfers to the elderly poor. Also, if an important part of the reason for working when one is young is to accumulate consumption capacity for the time when one is old, anticipated redistributions to the elderly poor may diminish this incentive for the young to work. However, the same myopia that discourages people from saving may discourage them from taking full account of (or fully anticipating) the need-based income that may be redistributed to them when they are old, so this disincentive effect on work may be small.

the older generation has the strongest case. Suppose we think of the more prosperous members of the working age generation (GEN2-Rich) as the source of these redistributable funds. Competing claimants for receiving these funds are the older generation (GEN3), poorer members of GEN2, and children (GEN1). Now, families with lower lifetime incomes tend to have more children than families with higher lifetime incomes, and children from poor families tend to have less access to good health and educational facilities, hence to remain poor. In addition, young families are at a low point on their age-earnings profiles, and capital market failure prevents intertemporal shifts, even if the families want them. Therefore, targeting redistributions to young families with many children (to GEN2-POOR and GEN1, e.g. through public spending on primary education, primary health care, and food programs) may have a more equalizing effect on current income across the population, on lifetime income within cohorts and on the inter-generational transmission of poverty, than does targeting to people when they are old.

In sum, it would seem that: 1) the higher the economic growth rate and the disparity between productivity of young and old, the stronger are the efficiency and equity claims of the older generation, and 2) the greater the income inequality, the fertility-low income and life expectancy-high income connections within the working-age generation, the stronger are the claims of the children and their families.<sup>7</sup> An additional consideration is that, once redistributive

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<sup>7</sup> For example, in Figure 2A line GEN3YG gives the lifetime income distribution of all people in GEN3 when they were young and GEN3OLD gives the lifetime income distribution of this same cohort when they are old. The latter has shifted to the right because many poor members of GEN3 have died before reaching old age. Line GEN2 gives the lifetime income distribution of the current working age generation.

old age programs are in force they are built into peoples' expectations and to abruptly cancel these promises would pose serious transitional problems, both from an economic and political point of view. We conclude that redistribution remains an important rationale for old age security programs, but this rationale should be interpreted as part of a system for alleviating lifetime poverty, not simply current poverty, and should be balanced against the claims of other disadvantaged groups. At the same time, any shift toward non-age related redistributive systems should include special "grandfathering" provisions for older cohorts.

## II. Key Policy Choices That Define Old Age Security Systems

This section spells out in greater detail the range of options available, in use, or under consideration for solving these efficiency and equity problems. Three key policy choices concern degree of linkage between benefits and

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It can readily be seen that, because of a high rate of economic growth, line GEN2 lies far to the right of GEN3YG or GEN3OLD. In fact, if we draw the "poverty line", PP, no members of GEN2 have an income below poverty while many members of GEN3 are below poverty. This is a case where redistribution from GEN2 to GEN3OLD would seem to be in order. Optimal redistributions are especially large if the labor disincentive effect and productivity of GEN3OLD is low.

On the other hand, in Figure 2B the growth rate is much less while the intra-cohort income disparity and the disparity in life expectancy between rich and poor are much more. In this case none of the surviving members of GEN3OLD have a lifetime income below the poverty line, while many members of GEN2 have incomes below poverty. Furthermore, these poor members of GEN2 are likely to be the ones with many children -- GEN1. This is a case where redistributions to GEN2POOR, especially to young families with children, would seem to be in order, and more equitable than redistributions to GEN3OLD. However, GEN2POOR and their children may not have the political power to bring this about, precisely because of their disadvantaged position.

Figure 2A may have applied during the rapid growth period of the O.E.C.D. countries in the 1950's and 1960's and the N.I.C.'s in the 1980's, while Figure 2B may be more appropriate in low-growth countries today.

contributions, use of full funding versus pay-as-you-go (PAYG) finance, and public versus private locus of management. The first is closely related to the objective of the plan, in particular, whether the policymakers wish to redistribute income across individuals and cohorts. The latter two have important implications for the way the plan is implemented. Each of these policy choices (and their combinations) implies a different type of government intervention, therefore each has different "public" elements, even if the private sector plays a major role.

#### Should Benefits Be Linked to Contributions?

Figure 3 sets forth the different combinations of benefit-contribution linkages, degree of funding, and managerial locus that are possible. Along the vertical axis alternative policies are listed according to the proximity between incremental benefits and contributions made by the individual, which is closely related to the degree of voluntarism involved.

The most voluntary government policy (row 1) is simply to encourage (e.g., through tax incentives) individual savings and pension plans. Families choosing these plans have indicated by their actions that they believe the expected benefits are at least as great as the expected costs, ex ante.<sup>8</sup> When savings-annuity schemes are provided through place of employment, such plans are usually voluntary from the viewpoint of the employer but may only be quasi-voluntary from

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<sup>8</sup> Of course, when insurance is provided actual benefits and costs will diverge for different individuals, ex post. In this paper voluntary actions and redistribution are defined in terms of expected values ex ante, not actual values ex post.

the viewpoint of the worker, if little choice is available in the labor market. In such cases, expected benefits and costs may diverge for some individuals, although not for most.<sup>9</sup> The U.S. and U.K. are two countries that have relied heavily on programs of this sort.

Mandatory savings-annuity or "defined contribution" schemes (row 2) constitute an alternative policy which implies somewhat less voluntarism, since they set a minimum floor on peoples' savings. However, the disparity between benefits and costs is limited because the expected monetary value of contributions and receipts are equal over the lifetime of each individual. Specified contributions are paid in to each individual's account and are eventually paid out to that person, with investment returns, in the form of annuities. Because the investment returns are uncertain, so too is the eventual benefit. Singapore, Malaysia and Chile are key examples of countries with such "provident funds" or "defined contribution" plans.

Next in order are the mandatory "defined benefit" plans (row 3), of the type found in all O.E.C.D. countries and in the civil service and formal labor sector in many developing countries, especially Latin America. In these plans, the

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<sup>9</sup> The fact that most firms choose to offer these pension plans suggests that they are used as part of the employers' recruitment and retention strategy (paying higher compensation to long term workers in accordance with their higher productivity) and/or that employers believe most workers prefer them to pecuniary wages. In either case, pension benefits to the worker are at least as great as the productivity-determined wages foregone. However, if job choice is limited, a minority of workers may have different tastes and may not find employers who offer their preferred compensation package. Also, some workers may not correctly evaluate the expected benefits and costs ex ante and may be disappointed as they gain more information later on. These limited choice and information models may result in a divergence between peoples' probable benefits and costs in employer-sponsored plans, as discussed further in Chapter 6.

benefit is prescribed according to some formula which often includes years of service and average earnings over the last few years. So long as this promise is kept, the benefit is known with certainty; however, the promise may not be kept if the rate of return in the economy as a whole turns out to be different from that expected. In such plans the benefit need not be closely connected to contributions even over a person's entire lifetime, some people may be required to contribute much more than they ever expect to receive, and vice-versa. Thus, such plans can be redistributive and indeed, as discussed below, redistribution is often a major goal. However, if the formulae are not carefully constructed, some of the redistributions that occur may be inadvertent and violate principles of horizontal or vertical equity.

Underlying all of these are the purely voluntary savings and family arrangements that are not mandated or tax-induced by the government and are, instead, a continuation of the informal system of old age security (row 4).

Two important observations fall out of this classification of schemes according to the linkage between benefits and costs for each individual. First, different degrees of voluntarism are used to meet different objectives. That is, if the goal is to get people to save more and to insure against the income needs of longevity, (i.e. to solve the insufficient savings, risk-pooling and incomplete consumer information problems outlined above) governments can encourage or mandate savings and annuity plans. These shift current income over the lifetime of the individual and across individuals with different life spans ex post, but they do not redistribute expected lifetime income across individuals or generations. (They also need not be publicly managed, as will be discussed

under the second key policy choice, "locus of management," below).

However, if the goal is to change the distribution of expected lifetime income across individuals or generations, a greater degree of compulsion is involved, since there is, by definition, a greater disparity between benefits and costs for some individuals. Most people who recognize they are "losers" will opt out if they can; this implies that redistributive plans cannot be voluntary, cannot give people much choice, and are likely to be set up as defined benefit rather than defined contribution plans. Thus, the objective of the plan strongly influences its structure, particularly the linkage between benefits and contributions and the appropriate degree of voluntarism.

A second observation is that this classification leads directly to a whole set of questions regarding the impact on labor supply and demand and capital accumulation, stemming from the disparity between expected benefits and costs. Voluntary savings-annuity plans (as in rows 1 and 4) should not introduce such distortions in behavior. Once contributions to retirement funds are mandatory (as in row 2), the automatic link between the individual's subjective valuation of costs and benefits is broken; people who are forced to save more than they desire will value the benefits less than the costs. However, the gap between costs and benefits is much greater in redistributive schemes (row 3).

Therefore a mandatory redistributive scheme can be analyzed and evaluated very much like a tax-subsidy scheme. It may discourage labor employment if contributions are tied to earnings, savings if they are tied to investment income and, perhaps more importantly, it poses serious problems of evasion --e.g.



through under-reporting income and shifting to the underground or the informal economy. While the magnitude of these effects is uncertain, has been the subject of much debate, and undoubtedly varies from country to country, it is probable that redistributive plans are more distortionary than mandatory savings-annuity plans, because, by definition, they drive a greater wedge between the individual's benefits and costs. This suggests an efficiency advantage of relying on the latter to the extent possible, i.e. except in cases where correlated risk or long term poverty are involved.

#### Should the Plan be Largely-Funded or Pay-As-You-Go?

A second important distinction involves the choice between largely-funded versus pay-as-you-go (PAYG) financing. Under PAYG, the current revenues of a plan cover its current obligations; there is no stock of savings for old age. Under a largely funded plan, capital accumulates to pay a stream of future obligations.<sup>10</sup> One important question is whether the implicit contract inherent

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<sup>10</sup> Under a fully funded plan, at any point in time aggregate contributions collected, together with the returns earned, will be enough to cover the present value of the future obligations. Full funding may be defined in terms of accrued or projected contributions and liabilities. Mandatory savings "defined contribution" schemes are, by definition, fully funded, since each individual is only entitled to the proceeds of his account, at any given time. However, in case of a "defined benefit" plan this concept is ambiguous. For example, the degree of funding is dependent on the future rate of return, which is assumed to be known. If the actual rate of return turns out to be lower, a defined benefit plan which appears to be fully funded may not be, in fact, and vice versa.

Furthermore, if people live longer than expected or retire earlier, a system that appears to be fully funded will not be, and a change in the benefit or contribution rate will be required to bring it back into balance. This may imply inter-generational transfers unless age-specific rates are established.

Also, if benefits are tied to earnings, the contribution rate required for full funding depends on the person's age-earnings profile. If the age-earnings profile changes for different cohorts, this requires corresponding changes in the

in a PAYG scheme or the explicit promise in a largely funded scheme is more likely to be honored.

The degree of funding is closely tied to the benefit-contribution linkage, as shown in Figure 3. "Defined contribution" schemes are, by definition, fully funded. "Defined benefit" plans can, in theory, be fully funded, but in the real world they almost invariably tend to be only partially funded or PAYG.

PAYG or partially funded plans have important advantages, including their ability to pay benefits to old people immediately, when the plan is first introduced, and to facilitate equitable inter-generational transfers in a context of rapid economic growth. These advantages made them the preferred system, for example, in the O.E.C.D. countries over the last half century. These transfers were accomplished through defined benefit schemes, which helps explain why defined benefit schemes have been largely PAYG -- both of these structural characteristics have helped achieve their redistributive goals.

However, their disadvantages are that they may diminish capital accumulation relative to largely funded plans, lead to unanticipated fiscal burdens and imply undesirable inter-generational transfers, particularly when economic growth slows

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contribution (or benefit) rate. But, since the age-earnings profile is not known in advance, a fund may again appear to be fully funded while in fact it is not. As above, since cohorts overlap, this implies inter-generational transfers unless different contribution rates are set for people of different ages who are working at the same time -- certainly a complex situation.

For all these reasons, the concept of a "fully funded plan" is rarely used in this paper. Instead, this paper uses the concept of a "largely funded plan", which raises all the key questions of investment policy and capital allocation.

down. A large controversy has developed about the question of whether PAYG schemes decrease savings and the answer has not yet been resolved, as will be discussed in Part III of this paper. But even if PAYG does not decrease savings relative to a non-mandatory situation, it seems possible to construct mandatory funded plans that will increase savings, hence economic growth, and may be preferred on those grounds.

In addition, the promises enabled by PAYG financing have often been overly generous from the long run point of view. Workers today pay pensions to the small group of retirees today, and in return expect future workers to pay for their pensions, when they retire. This implicitly places an obligation on future generations, who are not around to participate in the decision. This has set the stage for conflict later on, when the fiscal burden is much greater and future generations are not willing or able to keep these promises.

These problems arise, in particular, in the context of large demographic changes that alter the ratio of working age to older population groups. As the ratio of retirees to workers grows, due to increasing longevity and decreasing fertility, each worker must contribute a larger share of his earnings to support retirees, under a PAYG system. This is economically and politically viable only if productivity and wages are growing even more rapidly. But, productivity cannot always be counted on to grow rapidly, workers may doubt the continued viability of the system, and the implicit promise to retirees may not be honored. Latin America, Eastern Europe and some O.E.C.D. countries are now experiencing these recontracting problems. Of course, a largely funded plan also experiences problems as the population ages, dissaving by retirees exceeds saving by workers,

and the old consume a larger share of GNP. A crucial question, therefore, is whether GNP and productivity are likely to be higher under one system than the other. One object of the forthcoming study is to help countries think through the long term consequences of their policy choices, anticipate and thereby avoid the "unanticipated" effects, and consider alternative ways of responding in those countries where they have already occurred.

#### Should Management be Public or Private?

The horizontal axis in Figure 3 distinguishes between old age security arrangements that are publicly managed and monopolistic, versus those that are privately managed with competition and choice.<sup>11</sup> The concept of management has several different dimensions; for example, record-keeping, administering payouts, and investing pension reserves are all examples of management activities that might be handled privately. At this point, management is defined to cover the determination of benefits forthcoming from any given amount of contributions and the methods of investing accumulated funds.

The objective of the plan strongly influences the locus of management, just as it influenced the benefit-contribution linkage and the degree of funding. For example, competitive privately managed plans (based on consumer choice) are

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<sup>11</sup> Private monopolistic management is also possible. However, this is not found in any real world system nor does it seem desirable since much of the advantage of private management stems from competition. In this report, private management also implies choice and competition, unless otherwise stated. A private employer who manages the pension plan of his own firm may appear to be doing this on a non-competitive basis. However, that employer has the option of turning the pension plan over to an investment or insurance company; in this sense implicit competition and choice are present.

unable to redistribute net benefits, since they will tend to lose the customers who are being "redistributed away from." In contrast, public monopolies have the power to cross-subsidize and also make the "defined benefit" contract more credible, since government has the power to tax in order to keep its promise. Thus, if redistribution is an important goal, public control seems necessary. And, even if redistribution was not the goal *ex ante*, influential groups often secure redistributions *ex post* through publicly managed plans.

The locus of management is also closely related to the choice between full funding and PAYG finance. In general, competitive privately managed plans that are responsible for covering benefits out of contributions plus investment earnings must be fully funded to assure the ability to meet future commitments. Therefore, if full funding is considered socially desirable, this can be accommodated by relying on competitive privately managed plans. In contrast, given the government's power to compel contributions through taxation, publicly managed monopolies can finance their current benefit obligations out of current premiums.<sup>12</sup> As a result, all PAYG plans are publicly managed and most publicly managed plans are PAYG or only lightly funded.

The public-private dichotomy has important implications for the allocation of capital, hence the rate of economic growth, since public and private managers

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<sup>12</sup> Employer-sponsored defined benefit plans can also be only partially funded, backed up by the employer's promise to pay. While many plans were run on this basis in the past, this poses obvious problems, including the questions of what the impact will be on the firm's competitive position when it has to cover the pension costs of many retired workers, how payment will be made if the employer's business declines or goes bankrupt, and whether the government should provide pension insurance in such an eventuality, in which case certain minimum fiduciary requirements may also be set.

may have quite different investment objectives and constraints, and the presence or absence of competition further influences behavior. For example, competitive private managers chosen by consumers who will receive the investment income may have an incentive to maximize the rate of return, while monopolistic public managers may place a greater value on minimizing risk. As still another possible arrangement, the private managers may be chosen by the government under a contracting arrangement, with no consumer choice and with all returns eventually going into a single public fund; then the incentive structure depends on the nature of the bidding process and the terms of the contract, and is likely to be some hybrid of these two.

Controversial regulatory issues raised by the locus of control include the wisdom of: limiting investments to government securities (as usually done by public managers), setting optimal ceilings on risky investments or floors on diversification (especially for private managers), prohibiting foreign investments, allowing multinationals (or joint ventures) to run pension funds, requiring the dissemination of information about portfolio yield and risk, and implicit or explicit insurance by government as a last resort.

#### Common Policy Combinations

In sum, a wide variety of options, with different benefit-contribution linkages, redistributive versus non-redistributive objectives, full funding versus PAYG financing, and public versus private management are available, among which countries can choose. However, some combinations do not seem to be probable on a priori grounds or to have important empirical real world

counterparts. For example, the voluntary-public management combination does not seem to exist, perhaps because people would not voluntarily contribute to a publicly managed monopoly. The redistributive-privately managed and redistributive-fully funded combinations also do not occur, for reasons given above.

Therefore, a smaller number of models predominate empirically in formal systems of old age security, and seem to capture most of the important issues: (1) voluntary or quasi-voluntary savings-annuity plans, often connected to place of employment, that are encouraged by government policy but privately managed; (2) mandatory "defined contribution" savings-annuity plans that are fully funded, whose investment policies are (a) publicly or (b) privately managed; (3) mandatory "defined benefit" plans with redistributive goals, that are publicly managed and PAYG or partially funded<sup>13</sup>; and (4) purely voluntary savings (full funding) and transfers (PAYG) that are a remnant of the informal system of old age security. These will be discussed in detail in the forthcoming study.

In each case, attention will be paid to a number of cross-cutting themes: the insurance, capital and labor market effects which influence efficiency and growth, the redistributive consequences, the informational and regulatory issues and the implications for fiscal stability of each model. These themes are important because they spell out the probable consequences of alternative models for the level, growth and distribution of GNP. The next section of this paper reviews, more specifically, the major questions that arise with respect to each

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<sup>13</sup> The small reserve fund found in some redistributive plans is usually run directly by the government. In rare cases it has been turned over to a quasi-autonomous body.

of these cross-cutting themes. Particular attention should be paid to the special conditions in developing countries, such as their starting point with a very young age profile that makes it politically difficult to plan for the aging population they will have later on, the large informal labor sector and limited administrative-enforcement capacities that make evasion a major problem, the scarcity of capital and incomplete capital markets that currently exist, the heavy reliance on extended family arrangements that should not be crowded out, and the widely disparate income distribution that leads to widely disparate pension demands. The final section (Part IV) briefly summarizes each chapter in the forthcoming report, and makes tentative recommendations for a multi-pillar system that includes a mix of all four models.

### III. Cross-Cutting Themes

#### Insurance Effects

What risks regarding old age do people wish to insure against and what are the best mechanisms for doing so? For example, one may wish to insure against the risk that the individual will live longer than average, hence need greater future income than expected, that average lifetimes may increase, that inflation may accelerate, or that rates of return in the economy at large may be lower than expected.

As discussed above, privately managed savings and pension plans can insure against the first of these risks, although this is always limited by the possibility of firm bankruptcy. Reinsurance or government guarantees can solve



the bankruptcy problem, but at the expense of introducing a moral hazard problem into private behavior (e.g. private firms may accept high risks in the hope of getting high returns, and consumers may not have any incentive to constrain them, if pensions are insured; witness the closely related S & L disaster in the U.S.). The forthcoming report will consider the empirical evidence on these issues.

As for the risks of unexpected accelerating inflation, increasing average life expectancy and decreasing rates of return, which are correlated across individuals in a cohort, private plans are limited in their ability to credibly insure. Some private financial instruments provide partial indexing, but these cannot be counted on in times of rapidly accelerating inflation, as has occurred in many developing countries. A society that wishes to enable people to insure against these risks may therefore decide to use some public instruments, such as the purchase of indexed government bonds by private plans, government guarantees of private insurance, or a publicly managed plan, with a "defined benefit" formula which includes indexing; these arrangements are all backed by the power of taxation to compel redistribution across generations to meet these obligations, if necessary.

However, a word of caution is in order here, because public insurance, too, is not completely credible. Governments should carefully calculate the tax and defined benefit combinations that are feasible under different assumptions about demographic change, rates of return, and inflation. Otherwise, they may be making an implicit promise of insurance that will not be honored ex post, or will be honored only at greater cost to future generations and with different distributional consequences than would have been acceptable ex ante. This is

discussed further in the section on Government Budgetary Behavior, below, and simulations of mutually consistent tax and benefit combinations will be included in the report.

#### Capital Market Effects

What impact do alternative policies have on peoples' propensity to save, hence on the ability of the economy to accumulate capital? This is a particularly important issue for developing countries, for whom scarcity of capital is a major problem. If different old age security schemes have different effects on the growth of productivity and GNP, this is probably due to their differential effects on savings and capital accumulation.

Since a stated important rationale for government policies toward old age security is the need to increase savings, it is ironical that some policies adopted may actually have had the opposite effect. One hypothesis is that personal savings for old age will decline (relative to the situation without any formal policy) if people expect their retirement income needs to be met by the government under a PAYG system. If the government does not save more ( e.g. by running a smaller budgetary deficit or a larger surplus than it would have otherwise), total national savings will also decline, with corresponding consequences for capital accumulation and economic growth. Thus, both household and government behavior determine the final outcome. A large literature has accumulated on this question, using data from the American social security program. However, interpretations vary as to whether the empirical evidence is

consistent with this hypothesis.<sup>14</sup>

While the empirical effects of a pay-as-you-go plan are thus unclear, it does appear that largely funded schemes, whether publicly or privately managed, have the potential to increase capital accumulation. To realize this potential they must mandate saving beyond the point individuals would voluntarily have chosen, consumers must not find ways to evade these constraints (e.g. by borrowing against this saving, by dissaving other assets or by underreporting their income), and government must not offset this saving by running a larger budget deficit. Again, both household and government behavior interact to determine the final outcome. One (untested) hypothesis is that funded schemes may make it easier for governments to dissave by incurring deficits, thereby offsetting any increase in personal saving. The more fixed is government behavior, the higher the mandated savings rate, and the more limited consumer ability to evade, the greater the likelihood of a positive effect on saving. This capital-market-development potential is one reason why many countries are becoming increasingly interested in old age security arrangements schemes such as the Chilean one, which mandates savings.

If people are myopic, or if there are externalities from some uses of capital (such as research and development), the economy as a whole benefits from

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<sup>14</sup> A counterargument on theoretical grounds is that personal savings may remain unchanged or even increase if people 1) would not have saved for their old age anyway or do not correctly anticipate the future payments they will receive from the government (a form of myopia); 2) realize that their children will have to pay more taxes to cover the PAYG obligations, and therefore save to leave larger bequests for their children (perfect foresight); or 3) decide to retire earlier, because of their increased social security wealth. A combination of these three reasons may explain why there is no conclusive evidence that PAYG social security reduces personal savings.

increased saving. On the other hand, if people are not myopic and there are no externalities involved, increasing saving beyond the point that individuals would voluntarily have chosen is not welfare-enhancing. Indeed, in a Keynesian-type economy, increased saving may depress aggregate demand and precipitate a recession. A common presumption is that the first scenario holds and increased capital accumulation would be desirable in most developed and developing countries, at the present time. However, one should bear in mind that, if largely funded pension schemes become more widespread, the marginal benefits of further capital accumulation would decline and this presumption might no longer hold.

One should also bear in mind the caveat that, if largely funded schemes increase saving by the working population, this effect is reversed as the population ages, so that old dissavers exceed young savers. With funded schemes, demographic change may lead to swings in the level, value and rate of return to capital, hence instability in the capital markets. Under PAYG schemes these swings in saving and dissaving are less automatic although they may occur as an indirect capital market response to the changing labor supply.

Apart from their impact on aggregate saving, largely funded plans have the effect of channelling this saving into capital market institutions for a long and well defined time period (in contrast to savings that may be held in the form of land, jewelry, or demand deposits); financial intermediation with a long time horizon may thereby be facilitated. This leads to the empirical and normative questions: as these funds accumulate, how will they be invested, how should they be invested, and what role do (should) regulations play in this regard? Will

(and should) fund managers be conservative or risk-taking, will they seek short-term or long-term returns, will they provide venture capital in their investment policies, will they invest in foreign securities or should they be encouraged (required) to keep their funds at home? Will fund managers, as large shareholders, try to exercise control over the companies in which they invest, potentially serving as monitors for smaller shareholders who cannot play this role? These are crucial questions because, in countries where funded schemes predominate, they become a major source of long-term capital; a substantial concentration of capital market power may develop. This has occurred in developed countries (e.g. pension funds in the U.S.) and is even more likely to be the case in developing countries (e.g. provident funds in Singapore, Malaysia and Chile).

Since public managers chosen by political leaders and private managers chosen by individual savers may face different incentives and constraints, they may exercise this market power quite differently, so the choice of public versus private fund management may strongly influence the allocation of capital in the economy. For example, private managers in the U.S., U.K., and Chile have quite different investment patterns from public or quasi-public managers in Singapore, Malaysia and Sweden.

Still a third (hybrid) arrangement would have the government receive all contributions and issue all benefits but contract out the management of the funds to an autonomous agency or to a group of private managers, chosen in a competitive bidding process. The advantage here would come from economies of scale in administration and information-gathering about the investing skills of

private managers. Also, under this arrangement the government could more readily add on insurance against correlated risks. The disadvantage is the possibility that political factors and cronyism would strongly influence the award of these potentially lucrative contracts. This study will bring to bear the available analytic and empirical evidence on this question.

Should regulations require that pension reserves be invested in "safe" vehicles such as government securities, as often happens with publicly managed funds? If so, this may lead to a low rate of return (as in Singapore), a non-optimally low rate of risk-taking, and an overemphasis on public versus private goods. Knowing it has a captive audience of buyers, government may spend more and issue more bonds at lower interest rates than it would have if it had to deal in a competitive marketplace, thereby offsetting any increase in personal saving. Since government bonds are used to finance current government expenditures, this may also lead to an underemphasis on productive capital accumulation; this brings us back to the problem of under-saving and under-investment, discussed above.

Turning the funds over to private managers and giving them greater latitude in investing their assets may partially mitigate this problem. This may yield a higher expected rate of return but may also lead to overly risky investments, leaving many old people without the safe cushion of savings and annuities they thought they had. Government may then bail them out, as an implicit insurer of last resort, but this very possibility sets up its own moral hazard problem (as discussed under "insurance"). Information campaigns, disclosure requirements and regulations over investment policies are possible remedies for these pitfalls. So too is the "public trust with private contracting out" arrangement mentioned

above, as a method for combining some competition with some government accountability and insurance.

A related issue concerns the accessibility of mandated savings and annuity funds for "social sector investment" purposes other than old age security. For example, can and should they be withdrawable to finance a new home, college education for children, large medical expenses, living expenses and retraining costs during periods of unemployment, etc.? Market failure arguments may justify such uses, but also increase the amount of saving that should be mandated. These capital market issues are obviously both complex and critical to an evaluation of alternative policy options, so they will be discussed at some length in the forthcoming report.

#### Labor Market Effects

In mandatory systems the basis for contributions is often a payroll tax (or an income tax in which wages play an important role). Does this distort the labor supply decisions of young people and are these effects different for men and women? Usually eligibility for pension benefits depends on earnings rather than strictly age; does this distort the retirement decisions of old people? Considerable evidence from many countries suggests that such plans have, indeed, led to earlier withdrawal from the labor market than would otherwise have occurred, and this, in turn, has increased the cost of pension plans beyond the anticipated levels. If the tax is borne by employers, how does this affect aggregate labor demand, labor demand tied to foreign investment, hence the inflow of capital, and decisions to operate in the formal versus the informal labor

market? An extensive empirical literature has developed around these issues and will be summarized in the report.

In general, a redistributive public scheme would seem to have similar distortionary and evasionary effects as a tax and transfer scheme, and the more redistributive the scheme the greater the distortionary effects on labor supply and demand, implying a trade-off between efficiency and equity. While these effects may be small initially, it appears that they increase with the square of the magnitude of the tax and transfers, suggesting that after a point a substantial deadweight loss occurs. This is one of the most important reasons for a multi-pillar approach to providing old age income security, with some of the pillars redistributive and others non-redistributive.

In addition, if pensions are provided through place of employment (as in many voluntary plans in the U.S. and U.K. and company-based plans in the ex-socialist economies), they may strongly influence the allocation of labor. For example, they may reduce workers' mobility if the pensions are not vested or portable and employers' willingness to hire older workers if a defined benefit plan is used. These dangers have led to government regulations concerning vesting, portability and age discrimination in some countries, as summarized in the report.

#### Distributional Effects

As discussed above, a major distinction is that between policies designed to shift income across the lifetime of a single individual, versus those designed



to redistribute expected income across individuals or cohorts. Privately-managed mandatory savings-annuity plans (defined contribution or provident funds) are examples of the first, partially funded or PAYG public systems are likely to contain elements of the second. These can use a defined benefit formula that is flat or only weakly related to lifetime income, while contributions are more positively related, hence the over-all effect is redistributive. In general, a redistributive objective greatly narrows the available range of policy options; e.g., voluntary competitive privately managed plans are largely ruled out. If these are efficient on other grounds, foregoing them is a real cost of tying together the redistributive and non-redistributive parts of old age security arrangement.

This paper has already discussed the efficiency and equity arguments for using an old-age-based mechanism for redistributing income, and these will not be repeated here. It should be emphasized, however, that if old age security is largely provided through non-redistributive methods, other safety net instruments must be relied upon to alleviate long-term poverty; the added burden on these instruments and the distortions they introduce must then be taken into account in the balance sheet. Conversely, if a country already has a wide safety net for all, it can more easily rely on a non-redistributive and less distortionary plan for old age security.

Besides these conceptual issues are a number of important empirical issues regarding distribution. If there are redistributions across households, whom were they intended to favor and whom do they actually favor? Do they benefit the rich or the poor? Are they well thought out and transparent or do they seem

arbitrary, obscure and/or perverse? (For example, early retirement schemes for the civil service seem to have had the unintended effect of redistributing to the middle class, in some Latin American countries, and problems concerning transfers to early retirees also plague some Eastern European countries). What evasitory techniques have developed and how have they affected the operations of the broader economy? In general, what changes should be considered regarding the contribution and benefit formulae in the redistributive part of the program -- for example, tying premiums to a broader income base, setting a higher floor and a lower ceiling on benefits, and raising the retirement age? Again, simulations will be used to throw some quantitative light on the effects of such reforms.

#### Informational and Regulatory Issues

Each of the above categories has discussed related informational and regulatory implications, so they will be only briefly summarized here. For example, if individuals are given choice, as under voluntary savings plans, employer-sponsored pensions plans or multiple provident funds, they require information about the costs, benefits and investment policies of these funds, in order to exercise this choice intelligently. Similarly, companies issuing annuities require information about prospective applicants, in order to place them into an appropriate risk category, and if this information is asymmetric, adverse selection may result. If a plan is largely funded, its managers require extensive information about investment opportunities. Finally, policymakers and citizens require information about public redistributive PAYG plans, including transparent relations between contributions and expected benefits for different groups, to evaluate the equity of the plan. Since information is expensive,

differential informational requirements also imply cost differentials; and since it is not always in the interest of people possessing information to reveal it, this becomes an important regulatory issue as well.

Should banks and insurance companies handling voluntary long-term savings and annuities be subject to regulation over their investment policies, to ensure that they will be around when the young savers become old dissavers? Even more so, should organizations handling mandatory savings and annuities be required to invest these funds in specified ways in order to avoid major losses? Should full disclosure of their investment policies and returns be required? Should foreign investments and multinational fund management be permitted? should it be encouraged? Should employers be required to fully fund their pension plans, in order to avoid non-viable promises? Should these pensions be fully vested and portable in order to enhance labor mobility? Should the government explicitly insure privately managed plans (as preferable to the implicit insurance that might otherwise exist on an ad hoc basis) and how will it avoid the moral hazard problems this implies? And, if a public redistributive scheme is used, what constraints should be placed upon its investments, disclosures and pay-out rates; who will monitor the monitors to prevent them from making implicit promises that government is later unable to keep (or able to keep only at the expense of other, more important, fiscal needs)?

The will and capacity of government to regulate investment policies and practices, when this is contrary to important vested interests, is obviously crucial for the success of pension plans that are largely funded and privately managed, so an important issue concerns the existence of that will and capacity.

But monitoring financial viability is also crucial, although perhaps less obvious, for publicly managed PAYG schemes.

#### Implications for Government Budgetary Behavior and Fiscal Stability

This leads, finally, to questions concerning the fiscal implications of alternative schemes, which are likely to vary considerably according to the policy adopted. These effects are particularly difficult to predict because they depend on future government behavior, about which we do not have good predictive tools. However, several possible scenarios can be spelled out and will be examined in the forthcoming study.

The section on "Capital Market Effects" pointed up that these effects depend on whether government adjusts its budgetary behavior to offset changes in personal saving. Besides adjusting its total spending, government may alter its mix of expenditures, e.g. spending more on pensions and less on other goods or transfers. What predictions can be made about government's budgetary response to alternative models of old age security?

Consider first a public PAYG system, which must cover all or most current benefits out of current contributions. If this causes personal saving to decrease, government might offset this by increasing its saving, e.g. by cutting its deficit or running a surplus and paying off its debt. But political economy reasons suggest that the opposite may happen in many cases, especially in the long run.

In the initial phase, very few workers are eligible for retirement. Politicians with a short-term time horizon can make generous promises of future benefits, which gain them votes, and cost very little at first. It may not be in their vote-maximizing interest to raise taxes and run a surplus to promote investment at this point. If people are myopic (one rationale for government intervention in the first place), they too will not perceive the true long-term relationship between saving, benefits and taxes. Since older members of society, who are net recipients, are more likely to exercise political influence than younger member (some of whom are not yet born or of voting age), this further increases the pressure for generous benefits and early retirement age.

Of course, with the passage of time more people retire and the system is no longer self-financing; i.e., current contributions no longer cover current benefits, under the old formula. At that point, pressure may grow from retirees to finance old age security out of the general public treasury, by increasing the deficit. Under this scenario, a PAYG system may eventually lead to less, rather than more, government saving.

Alternatively, government may cover pension benefits by cutting back on other public expenditures, some of which may have higher social value but a less influential constituency. Finally, government may try to avoid both of these courses (higher deficits or reduced expenditures on public goods) by raising contributions or taxes. But counteracting pressures may come from young workers, who prefer to renege on the implicit promises to retired workers. Thus PAYG systems pose the competing dangers of fiscal instability and unfulfilled promises, due to political myopia, interest groups who are concerned about

private rather than social well-being, and unenforceable implicit contracts.

For example, in many O.E.C.D. and Latin American countries, old age security programs are now costing tax-payers much more than was initially expected, deficits have been incurred as a result, and increases in contribution rates or changes in benefit formulae, such as moving to a later retirement age or a lower rate of indexation, have been adopted or are being contemplated. These reforms are indeed necessary; but the unsatisfied expectations and changing rules of the game are disruptive both to older and younger generations. The study will spell out the options available to government by presenting simulations of the tax rate, or share of total government budget under existing tax rates, or deficit under existing tax and expenditure patterns, implied by different benefit formulae, as the proportion of the population that is old increases, under alternative assumptions about growth, rates of return and inflation. It will also analyze the empirical evidence about the actual government response to this situation.

On the other hand, under publicly managed systems that are largely funded, a different kind of problem arises. Here capital accumulation takes place initially, but such funds are often, by law, required to invest exclusively in government securities. Assuming they constitute a large portion of the total stock of savings, this will cause the rate of interest to the government to understate the true opportunity cost of capital. It is possible that policymakers will respond to this lower monetary cost and captive audience of bond buyers by spending more and saving less than they would have otherwise. If so, this would imply: 1) more spending on non-social-security public goods than

is economically desirable or would be the case in a PAYG system and 2) larger public deficits and less saving available for private goods than would have been the case in the absence of an old age security system. The solution to this fiscal problem may be to allow investment of the pension reserves in private securities, on a competitive basis; this path, however, has not yet been chosen by practically any large publicly-managed fund.

Privately-managed largely funded schemes would seem to avoid both of these major fiscal problems. However, they too are not trouble-free, because the government is ultimately the insurer of last resort. Thus, if the private funds, over which the government has only limited control, invests unwisely, the public treasury may ultimately have to bail them out, rather than allowing numerous old people to lose their most important source of income. (Note the similarities to the recent S & L disaster in the U.S.). In addition, if these schemes are tax-advantaged, as mandatory savings plans or job-based pension plans tend to be, and if they displace other personal savings whose returns would have been taxable, this creates a hidden tax expenditure for the government. All of these factors might lead to an unexpectedly large fiscal burden stemming from privately-managed pension funds as well.

The actual behavior of government is exceedingly difficult to predict, it probably varies greatly from one country situation to another, and this study will not attempt a uniform answer. However, the study will carefully examine the fiscal experience of several countries with different kinds of plans to see the range of probable government behaviors (hence the probable capital market effects). By spelling out the different fiscal dangers, the report aims to help

countries avoid problems others have faced and make better informed choices of their old age security arrangements.

#### IV. Plan of The Forthcoming Study

Chapter 1 of the report will outline the wide-ranging issues concerning old age security that have just been discussed. The variety of different plans available, and their relative importance, are surveyed in Chapter 2. We see there that, out of the large number of possible models, based on degree of voluntarism, redistributive versus non-redistributive objectives, public versus private management, and PAYG versus largely funded plans, three or four models have the most important real-world counterparts and also capture the most important policy choices; hence they will be discussed in detail in this study. These are: mandatory redistributive plans that are publicly managed and largely PAYG; mandatory savings-annuity plans that are fully funded and publicly or privately managed; and voluntary savings-annuity plans or quasi-voluntary employer-sponsored plans that are privately managed and partially or fully funded.

Chapter 2 also surveys the wide variation that exists across countries with regard to the design features of their public pillars. Subsequent chapters ask, for each pillar: How does this plan work? What are its key design features? What are its effects with respect to the cross-cutting themes discussed above? What problems have arise and how have they been resolved in countries where this model has been used?



Chapter 3 sets the stage for the discussion of formal systems by surveying the informal systems for old age security that dominate in most developing countries. Topics covered here include: the circumstances and groups for which these systems work well and the conditions under which they do not work well; the impact on informal systems of urbanization, migration, fertility changes and other aspects of economic development; enforcement mechanisms in informal systems and how they may be changing; the interaction between formal and informal systems; and government programs that might help "fill in the gaps" in informal systems.

Chapter 4 analyzes the redistributive pillar, with examples drawn from publicly managed plans in the O.E.C.D. countries, Latin America, Eastern Europe, and the Arab world. Important design decisions here include degree and type of redistribution among groups (which depend on eligibility criteria, basis for contributions and benefit formula), retirement age and conditions, provisions regarding indexation, degree of funding versus PAYG, and investment policies regarding these funds. Key problems are possible disincentive effects on labor supply and savings, perverse and/or non-transparent redistributions, funding problems due to demographic change (increased proportion of old people), rapid escalation of fiscal burden, and informational needs of policymakers and citizens. Simulations will be made of contribution rates, benefit rates, and their distribution, as well as effects on government spending and deficits, under different assumptions regarding demographic change, inflation, rates of return and funding mechanisms. These problems lead to recommended reforms of the public systems, including the elimination of inconsistent rules and unsustainable promises and reconsideration of financing and investment policies.

Chapter 5 analyzes the mandatory savings-annuity pillar, plans that are (a) publicly managed (Singapore, Malaysia, Ghana) or (b) privately managed in a competitive system (Chile). These are inherently fully funded, and, under certain conditions, will increase long-term savings, capital accumulation and the development of institutions that foster the mobilization of this capital for productive investment. How has this potential been realized in practice? Major issues here concern the private decisions and public regulations governing the investment of these large funds, the appropriate role of government guarantees, and the informational requirements in situations where consumers have choice. What has been the actual experience and what are the potential problems concerning the trade-off between rates of return and risk? How do public and private managers compare in this respect? Are administrative costs higher in competitive privately managed systems? What is the effect of different contribution rates and pension targets? Is there a minimum wage below which contributions should not be required? Is a minimum pension guaranteed by the government for those with low lifetime incomes? What added burden is placed on other safety net instruments by a non-redistributive system of old age security?

Chapter 6 analyzes the voluntary and quasi-voluntary savings-annuity pillar, plans that are encouraged by government policy but privately managed; empirical evidence will be drawn from the U.S., U.K., Switzerland, and Latin America. Often these are job-based pension schemes that are instituted by employers as part of their strategies for attracting and retaining workers. Key issues here include the desirability of tax incentives to expand such plans and, as a corollary, the hidden tax-expenditure they imply, their impact on savings and labor mobility, the need for regulations to ensure vesting and portability

of pensions, ex ante and ex post distributional effects, and provisions for assuring their financial viability (including regulatory controls over funding and investments combined with government insurance).

Chapter 7 deals with transitions: (1) from the informal systems that currently exist in many countries for handling insurance and redistributive functions to a somewhat greater (but still only partial) formal system, including the effects on fertility and family and the problem of how to introduce formal mechanisms without crowding out informal mechanisms; (2) from pay-as-you-go to fully-funded systems, including changes in aggregate savings and the question of how the public treasury should handle the large remaining unfunded liability; (3) from publicly to privately managed systems, including changes in administrative costs; and (4) between more and less redistributive systems, including the increased need for other safety net instruments if less redistribution is provided through old age security arrangements. If the crowd-out effects are long term (as might be the case if public transfers break the "habit" of private transfers or if the introduction of formal systems accelerates the decline in fertility and the breakdown of extended family arrangements), elements of systemic choice may be irreversible. Even if not irreversible, clearly there are heavy political and economic costs in transitioning from one system to another, which will be documented here. This underscores the importance of careful decision-making at the start, to avoid mistakes that cannot be corrected or that require costly systemic changes later on.

Chapter 8 considers the special situation in the ex-socialist economies of Eastern Europe and the former U.S.S.R., including an analysis of how their old

age security systems are changing as part of their broader economic change, how existing systems could be strengthened, and how these changes might impact their newly emerging capital and labor markets.

The Conclusion compares the various pillars and considers the combined effects of alternative mixes of these pillars, with respect to the impact on efficiency, equity and growth. A set of options concerning more detailed design features is also presented.

Each of the separate old age security models solves one set of problems but also creates a new set of problems, so trade-offs must be made among multiple objectives and their costs. Unfunded (or lightly funded) publicly managed systems can solve all the insurance and redistributive problems, but at a potentially large cost in terms of incentives for evasion, distorted capital formation and allocation, and discouraged labor supply and demand. Since they are run by the government as monopolist, there is no competitive mechanism to encourage internal efficiency, choice of the "right" benefit-cost package, or expected-return-maximizing investments. A major problem concerns the fiscal burden of old age security, which often increases faster than expected, especially when the ratio of retirees to workers rises, as has occurred in many countries during the last decade and will occur in many more over the next two decades. If contribution rates rise in a PAYG system, workers may refuse to pay; if benefits fall below expected values, retirees may have trouble maintaining their standard of living; if neither occurs, deficits increase and other public goods suffer. All of these effects have made such systems non-sustainable in many countries. Also, these systems raise questions concerning inter- and intra-

generational equity, of perverse redistributions that are not transparent, were not openly discussed, and were not fully intended or expected.

In contrast, fully funded mandatory savings-annuity systems that are privately managed can solve the myopia problem and many of the risk problems, while minimizing costs of evasion, distorted incentives and fiscal over-extension. They may also aid in capital formation and allocate this capital efficiently, hence encouraging growth. These are their big advantages. However, they may also lead to capital market instability as population age profiles change, hence the relative number of young savers and old dissavers also changes. They fail to solve the redistributive and correlated risk problems. People who earn low incomes while working may be in even greater financial difficulty after they retire. If inflation accelerates rapidly, private indexing efforts may break down. If the economy enters a recession, rates of return on savings may fall drastically and people living off their savings are hurt disproportionately. If invested primarily in government securities, this may encourage government borrowing and deficits. If high risk private investments are made and fail, many workers may lose their savings. If government has insured the plans, this may create moral hazard problems and impose a large fiscal burden which the system was set up to avoid. Consumers may not have enough information to choose their investment and pension plans wisely. Government regulations may ameliorate these problems, but will not completely solve them, if the regulations are imperfect or imperfectly administered (as is likely to be the case).

Quasi-voluntary employer-sponsored programs that are largely funded have many of these same advantages but have additional disadvantages: they incur

hidden tax costs, provide uneven incomplete coverage, sometimes give workers little choice or information and, if vesting and portability are limited, distort labor mobility and allocation. Furthermore, if the plan is not funded and the employer goes bankrupt, many workers will suddenly find themselves without adequate pensions. Therefore, these may be useful as a supplementary pillar, but not as a base pillar.

At this point, the following recommendations seem relatively clear-cut and non-controversial. Further recommendations will be made based on the empirical findings of the study.

1. The most general recommendation is likely to be that countries seriously consider utilizing a multi-pillar system which includes: a) a broad based privately-managed mandatory savings-annuity pillar to alleviate current-income poverty caused by myopia and incomplete insurance markets, combined with b) a carefully designed public pillar for redistribution to those in long-term poverty, and possibly for insuring against correlated risks, all supplemented by c) tax-advantaged privately-managed pension programs, on a voluntary or quasi-voluntary (employer-sponsored) basis and d) a purely voluntary savings pillar, a continuation of the informal system for providing old age security. Some countries currently use two or three of these pillars, but greater movement in this direction, particularly movement incorporating larger elements of mandatory savings-annuity schemes, seems desirable in many cases.

The reasoning behind this recommendation is that old age security programs have multiple objectives. Since each pillar is most appropriate for a different

objective and has different distortionary effects (which presumably increase with size), this is a rationale for using a mixed strategy, which avoids the worst problems and retains the best advantages of each. In some respects the different schemes are directly complementary -- as would be the case if the public PAYG pillar discourages saving while the mandatory savings-annuity pillar offsets this negative effect. Although the general direction of the costs and benefits of each pillar are known, the specific magnitudes often are not known and depend upon future events. This is an additional reason why some countries use a mix of these policy options and, indeed, a mix is optimal in order to accomplish multiple objectives with a minimum of deadweight and uncertainty loss. This is also why the "best" combination of policies varies among countries, depending on their objectives, the trade-offs among them, and their economic parameters, including their initial conditions.

2. The benefit and contribution formulae of the public redistributive pillar should be simple and transparent and should be based on careful estimates of financial viability under different assumptions about ex ante and ex post income distribution and demographic change. Old-age-related redistributions should be viewed as part of a broader safety net that balances the redistributive claims of diverse disadvantaged groups.

3. The development of a mandatory savings pillar should be evaluated as a possible means to minimize evasion and to facilitate the mobilization of long-term private capital. This may also enable the reallocation of scarce government resources to important public services (such as health and education) and the targeting of transfers from general revenues to low-income groups, which includes

some (but not all) old people, some members of the working-age generation, and some children. The study will draw on the empirical evidence to make more detailed recommendations concerning the structure of and regulations over the mandatory savings-annuity pillar.

4. Voluntary savings for old age should be encouraged, both in rural and urban areas. Governments can aid this process by permitting the holding of private property, offering favorable tax treatment to savings, maintaining a non-inflationary environment, building the financial infrastructure (such as the broad availability of postal savings plans, even in rural areas), and implementing pro-growth policies; empirical work has shown that rapid growth is the major facilitator of voluntary personal savings.

5. Early vesting and portability, transparent benefit formulae and financial viability through funding should be required of job-based pension schemes.

6. Currently some countries (e.g. in Africa and parts of Asia) rely heavily on informal systems of old age security. In transitioning from informal to formal systems, these countries should be aware of the possibilities that public transfers may crowd out private, and that PAYG public systems may imply large future commitments that are difficult to reverse later on. Formal systems should be introduced carefully, with strategies designed to avoid these dangers. Factors suggesting the appropriateness of extending the formal systems are: rapid growth and urbanization, breakdown of the extended family and other informal mechanisms for exogenous reasons (such as famine, wars, and internal migration),



and government and/or private sector capacity to administer such programs. Countries that do not have these conditions should go slow in implementing a formal system of old age security.

7. Currently most countries have some formal programs of old age security, particularly public PAYG programs in which benefits are not closely linked to contributions. Many of these countries (e.g. in Latin America, Eastern Europe and some O.E.C.D. countries) face problems of fiscal overextension, capital scarcity, labor market distortions, and perverse redistributions. For these countries there is an urgent need to scale down the unrealistic promises of their public redistributive pillars, by raising retirement age and reducing benefit levels, to target future transfers more closely toward low income groups, and to consider phasing in a mandatory savings-annuity pillar for those who can afford it.

8. There is no single "best" mix of these pillars, but a range of alternative acceptable mixes, depending on country conditions such as objectives, managerial capacity, age profile of population and preexisting systems.

Figure 1

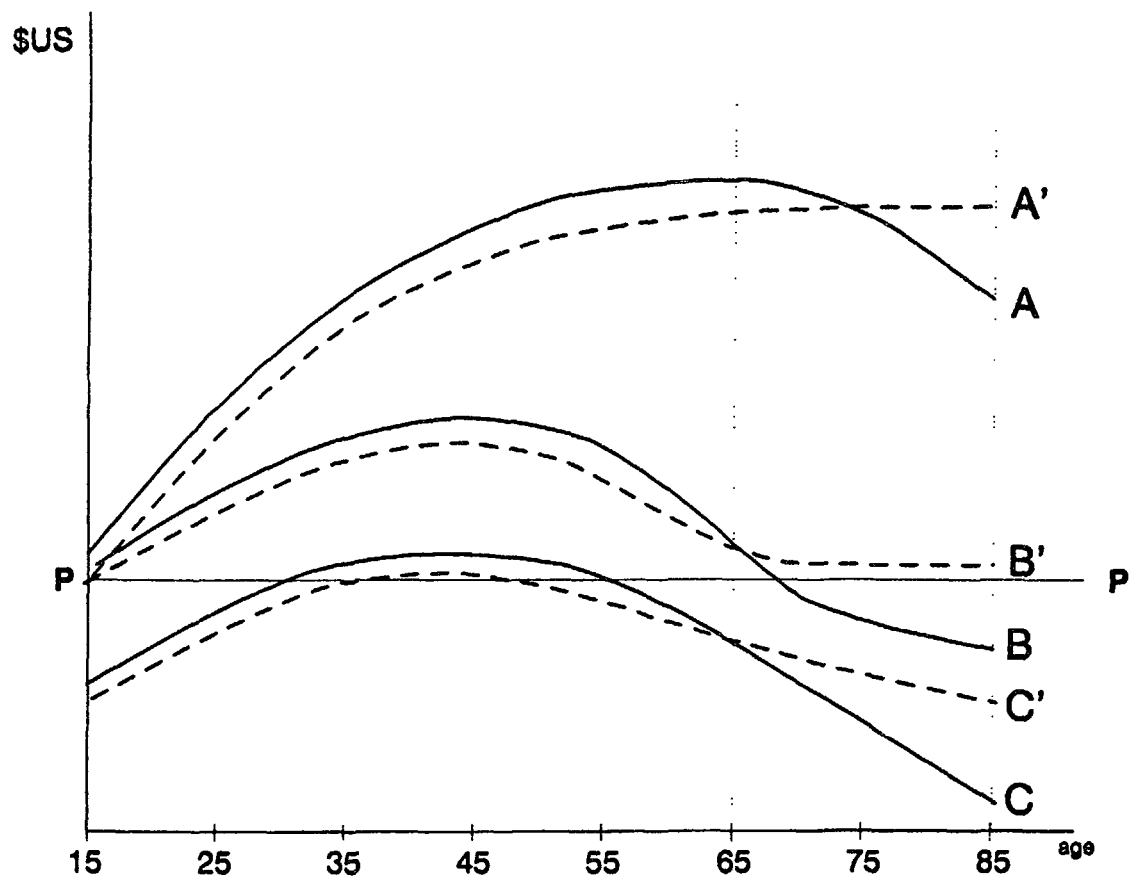


Figure 2-A

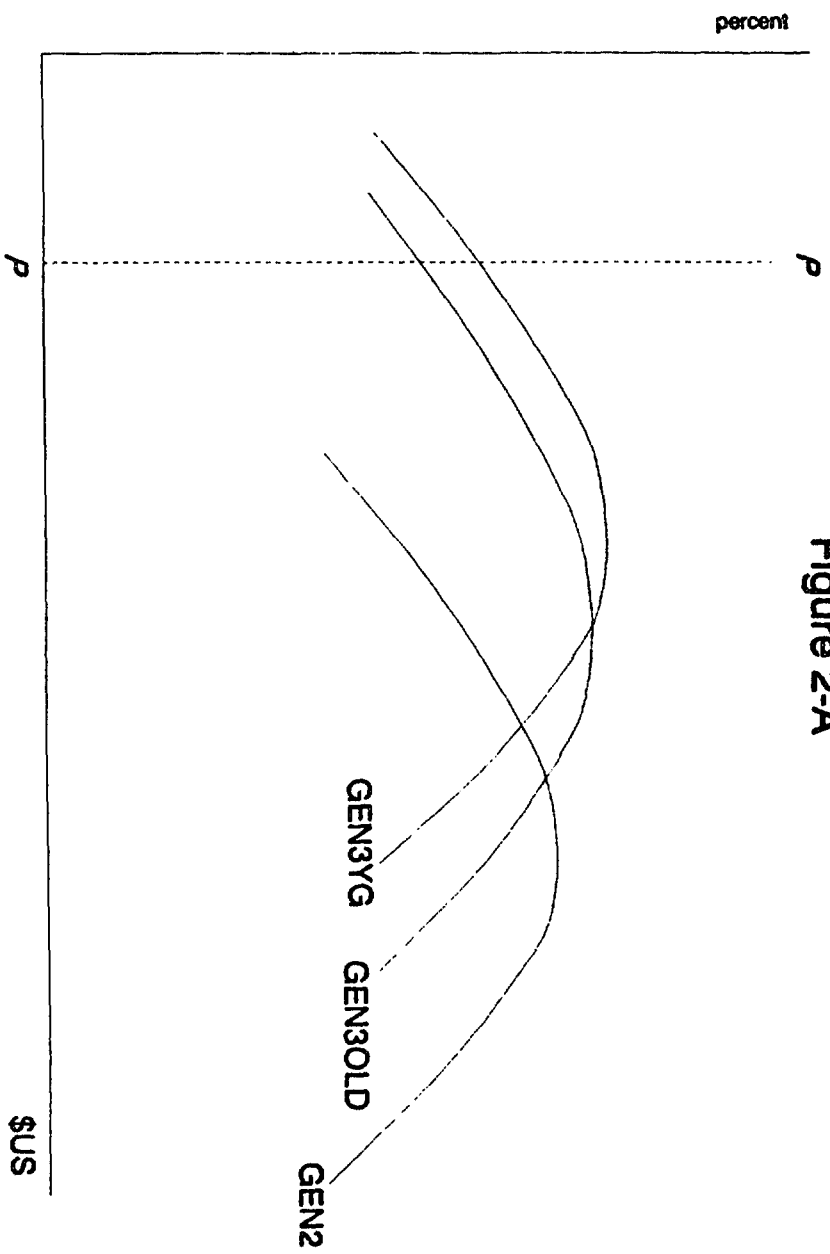
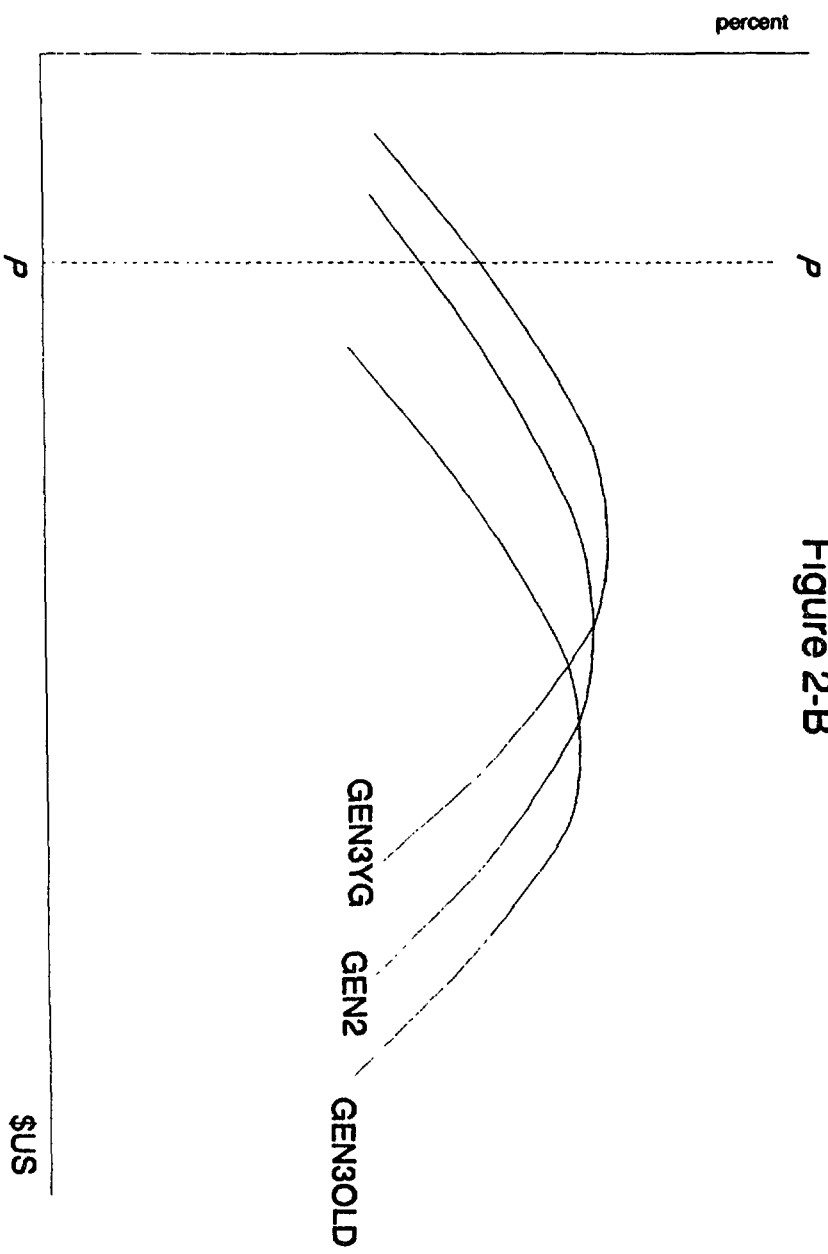
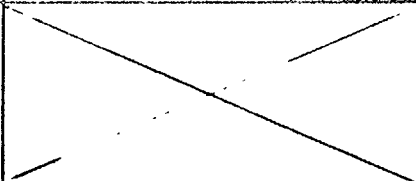
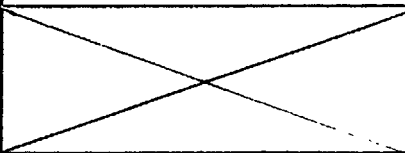
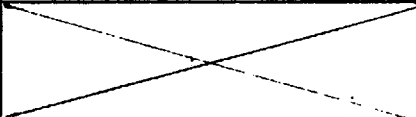


Figure 2-B



**FIGURE 3: KEY POLICY CHOICES AND COUNTRY EXAMPLES**

Benefit-Contribution Linkage and Degree of Voluntarism	Management	
	<u>Public</u>  No Choice No Competition	<u>Private</u>  Choice Competition
Tax-advantaged Voluntary and Quasi- Voluntary (Job-based) Saving - Annuity Plans		U.S., U.K., Japan, Switzerland, Latin America.
Mandatory Savings-Annuity Plans (Defined Contribution)	Singapore, Malaysia, Ghana.	Chile.
Mandatory Redistributive Plans (Defined Benefit)	O.E.C.D. countries, Latin America, Arab World.	
Purely Voluntary and Informal Arrangements		All countries to different degrees.

**Note on PAYG vrsus Funding:**

- Row 1: mixed, depending on country regulations.
- Row 2: by definition, fully funded.
- Row 3: usually PAYG or partially funded.
- Row 4: personal savings are fully funded, family transfers are PAYG.

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